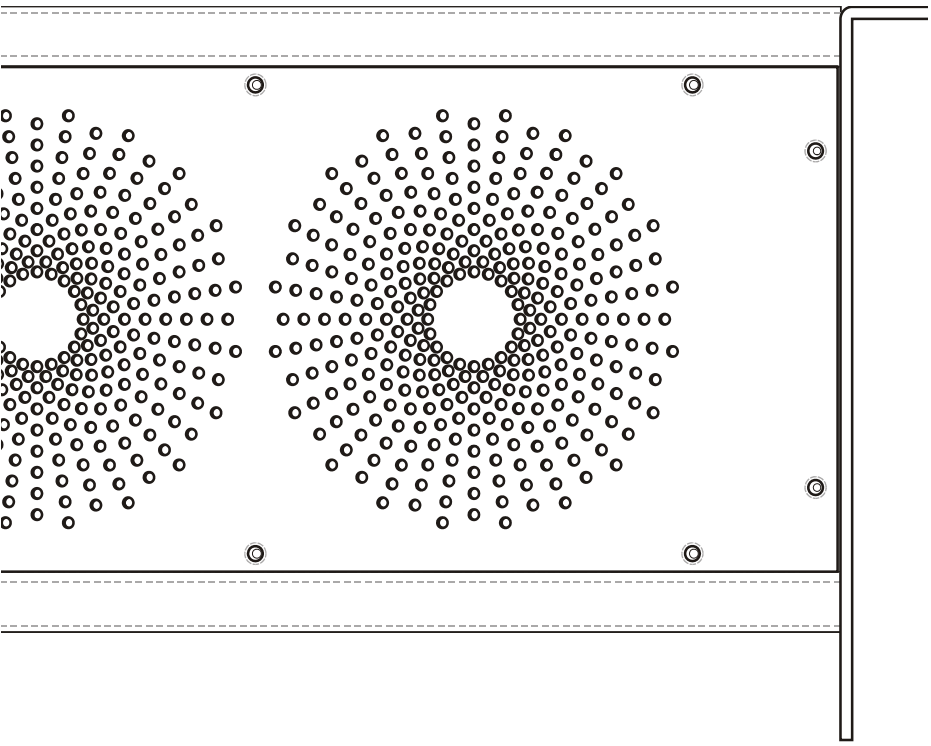
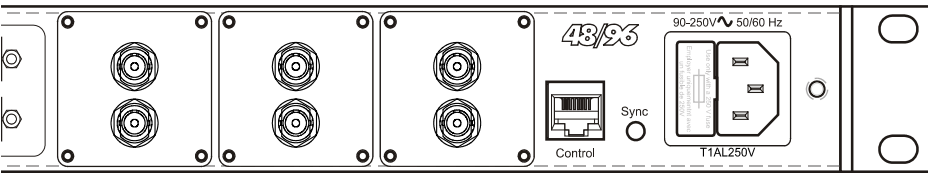
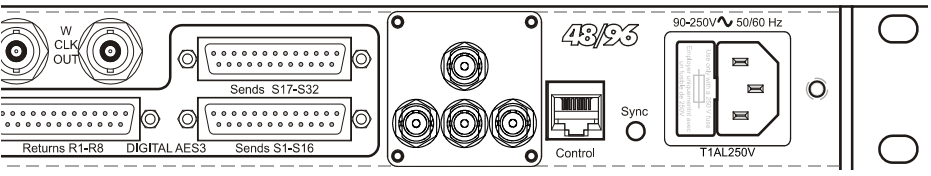






LightViper
FIBER OPTIC AUDIO SNAKE

USER MANUAL FOR
VIS-4832

Warning for Your Protection

1. Read these instructions
2. Keep these instructions
3. Heed all warnings
4. Follow all instructions
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

The apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the apparatus.

"WARNING To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture."

General Installation Instructions

Please consider besides these general instructions also any product-specific instructions in the "Installation" chapter of this manual.

Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable. Repair must only be performed by trained personnel in accordance with the applicable regulations.

Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the environment must be within the specified limits during operation of the unit. Relevant values are the ones at the air inlets of the unit.
- Condensation must be avoided. If the unit is installed in a location with large variation of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken before and after operation.
- Unobstructed air flow is essential for proper operation. Air vents of the unit are a functional part of the design and must not be blocked in any way during operation (e.g. by objects placed upon them, placement of the unit on a soft surface, or installation of the unit within a rack or piece of furniture).
- The unit must not be heated up by external sources of heat radiation (sunlight, spot lights).

Ambient Temperature

Units and systems by LightViper are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5...+40 °C. When rack mounting the units, the following facts must be considered:

- The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
- Average heat increase of the cooling air shall be about 20 K, allowing for an additional maximum 10 K increase at the hot components.
- In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2.65 m³/min is required. *Example: A rack dissipating P = 800 W requires an air flow of 0.8 * 2.65 m³/min which corresponds to 2.12 m³/min.*
- If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the outgoing air temperature must be measured directly above the modules at several places within

Earthing and Power Supply

Earthing of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in the mains cable. Units with battery operation (< 60 V, class III equipment) must be earthed separately. Earthing the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by defective power supply insulation, but may also be introduced by the connected audio or control cables.

This equipment may require the use of a different line cord, attachment plug, or both, depending on the available power source at installation. If the attachment plug needs to be changed, refer servicing to qualified service personnel

If your unit mains supply is provided via a Neutrik PowerCon™ connector the following precautions must be followed:

- The PowerCon must be installed and fully engaged before AC power is applied to the unit.
- The unit must be disconnected from the mains supply before disengaging the PowerCon connector.

Class I Equipment (Mains Operation)

Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC320/C13 or IEC320/C19) with respect to the applicable regulations in your country.

Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (protection conforming to class I equipment) must be connected to a 3-pole AC power outlet so that the equipment cabinet is connected to the protective earth.

WARNING

If the ground is defeated, certain fault conditions in the unit or in the system to which it is connected can result in full line voltage between chassis and earth ground. Severe injury or death can then result if the chassis and earth ground are touched simultaneously.

Registration

Be sure to register your LightViper product, either by filling in the enclosed Registration Card or by completing the on-line registration form at our Web site:

http://lightviper.com/register.aspx

If you do so, FiberPlex can contact you with any update information. As enhancements and upgrades are developed, you will be contacted at the registration address. Please read this manual - if you call for technical support, we'll assume that you have.

Please address any inquiries to your dealer or directly to FiberPlex at:

FiberPlex Inc.
10840-412 Guilford Rd.
Annapolis Junction, MD 20701
301.604.0100 Fax: 301.604.0773
sales@fiberplex.com

Warranty, Service and Terms and Conditions of Sale

For information about Warranty or Service information, please see our published 'Terms and Conditions of Sale'. This document is available on fiberplex.com or can be obtained by requesting it from sales@fiberplex.com or calling 301.604.0100.

Disposal

Disposal of Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste. If you need to dispose of the transport packing materials, please try to use recyclable means.

Disposal of Used Equipment

Used equipment contains valuable raw materials as well as materials that must be disposed of professionally. Please return your used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled is. Please take care that your used equipment cannot be abused. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

Declarations of Conformity

Class A Equipment - FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

CE

c UL US LISTED

Disclaimer

The information in this document has been carefully checked and is believed to be accurate at the time of publication. However, no responsibility is taken by us for inaccuracies, errors, or omissions, nor is any liability assumed for any loss or damage resulting either directly or indirectly from use of the information contained within it.

Introduction

Congratulations on your purchase of a Light Viper 4832 fiber optic audio snake — a lightweight, flexible breakthrough for professional sound production.

Light Viper products are designed, engineered and manufactured by FiberPlex, experts in fiber optics with decades of experience. Our work in audio and data communications products is known in US government applications worldwide. Light Viper products combine our fiber optic technology with the highest standards in audio engineering.

The VIS-4832

You have purchased the LightViper 4832 system, a 32 x 8 AES digital input fiber-optic transport systems (snake). Instead of traditional heavy multi-conductor copper cable, the Light Viper snake features a lightweight, flexible, military tactical grade fiber-optic cable.

The Fiber Advantage

Fiber optics offer many advantages over copper:

- Transmits light rather than electrons
- Transmission over greater distances (more than 2 Km [1.25 mile])
- Complete electrical isolation
- Immunity to RFI and EMI
- Eliminates ground loop problems
- Can be routed overhead, through walls, or underground
- Avoids foot traffic while maintaining aesthetics

Functional Considerations

The Light Viper 4832 is an active device. Because of this, there are some aspects of this new technology that require some slightly different thinking:

- Light Viper 4832 system requires AC Power at both the Stage (VIS-4832) and the console (VIM-1832)
- The 4832 system contains (32) AES digital inputs only. There are no microphone preamplifiers as with the 1832 system
- All inputs exit the snake (at the Mixer Box) at Line Level
- Input and Output flexibility may eliminate the need for some of your outboard gear
- The LightViper VIM-4832 is an active device, therefore do not attempt to connect intercom into the returns
- The returns in the VIS-4832 cannot be “turned around” to provide 40 sends one way as with a traditional copper snake, as the electronics for the returns are contained in the VIM-1832.

Standard Components

In its standard configuration, the Light Viper 4832 system is comprised of the following primary components.

- **The Stage Box (VIS-4832)** — This is the box placed close to all the inputs on stage. It is a 1U rack mount device that accepts (32)AES digital inputs (sends) and (8) AES digital plus (8) analog line level outputs (returns).
- **The Mixer Box (VIM-1832)** — This unit contains (32) simultaneous AES digital and analog line level outputs (sends) and (8) AES digital or (8) analog line level inputs (returns). The unit should be mounted in a rack close to the primary (FOH) mixing console
- **The Fiber Cable (TFC-0000-04)** — The lightweight "tactical grade" fiber 'cable' that carries the digital signal between the stage and mixer boxes. For installation use, either PVC or Plenum rated fiber is recommended (VFC-0000-D, VFC-0000-DP).
- **TAC-4 Connector Panels** – (VPL-11, VPL-12, VPL-13) – These 1U rack panels contain (1), (2), or (3) panel mount TAC-4 connectors mounted respectively and allow connection between tactical grade fiber to the ST connectors on the VIM units.
- **Send / Return Cables (VCB-ADXM, VCB-ADXF)** — These cables connect the Mixer Box to the analog inputs/outputs of your mixer. If you are connecting to a Yamaha digital console through the Yamaha "Y" cards, you would use VCB-DDMY and VCB-DDMYIO cables. A variety of cables to connect to other digital consoles and devices are also available.

Optional Components

Additional components can be added to the Light Viper 4832 for increased functionality.

- **VIM-MY32 Cards** — The VIM-MY32 can replace the VIM-1832 primary connection or a VIM-1032 on a split connection. The VIM-MY32 card set is designed to be installed directly into a Yamaha console capable of accepting YGDAI cards.
- **Additional Send Box(es) (VIM-1032)** – The VIM-1032 is similar to the VIM-1832 mixer box in that it provides a parallel set of the snake's 32 input channels, via an additional Fiber Cable, in applications where you need splits – for recording, broadcast, or monitor mixing. The VIS-4832 Stage Box can be fit with two "split" connectors for a total of three (1 VIM-1832 (Primary) + 2 VIM-1032 (splits) outputs.
- **Additional Analog Fan Out Cable(s) (VCB-ADXM / VCB-ADXF)** – These fan out cables are necessary for connecting additional mixer boxes (VIM-1832 and VIM-1032) to your analog equipment. You need (4) VCB-ADXM for each VIM-1832 or VIM-1032 mixer boxes in the system. The VIM-1832 also requires (1) VCB-ADXF (female) fan out to access the returns.
- **Additional Digital Cables** – To connect AES digital directly into a Yamaha PM5D, DM2000, DM 1000 or M7, you need (2) optional cables for each 32x8 system. (1) DDMY and (1) DDMYIO will allow a 32x8 connection into the Yamaha MY16AE cards. Optional cables are available to interface with Pro Tools and other types of devices and various connector configurations.
- **Ethernet Control** – Add the optional ETH-1832 (pair) option to any Stage / FOH path, and control a variety of Ethernet based gear on stage from the FOH position.
- **Additional Fiber Cable(s)** – For live production, TFC-0000-04 tactical grade fiber with TAC-4 Connector terminations is required between the stage box (VIS-1832) and all mixer boxes. For installations where the fiber will be pulled through conduit, either VFC-0000-D (PVC fiber) or VFC-0000-DP (Plenum rated fiber) with ST connector terminations is recommended. There is also an option for a "Pulling Eye" which can be specified by adding an "PE" to the part numbers above. This option includes a strain relief and pulling eye on one end of the fiber optic cable.
- **TAC-4 and OpticalCon** connectors can also be fit directly on the chassis of the VIS-4832, VIM-1832 and VIM-1032, in applications such as these, rack ears and VPL panels are not required.

Please refer to page 12 for a complete list and photos of fiber-optic cable types as well as copper interface cables.

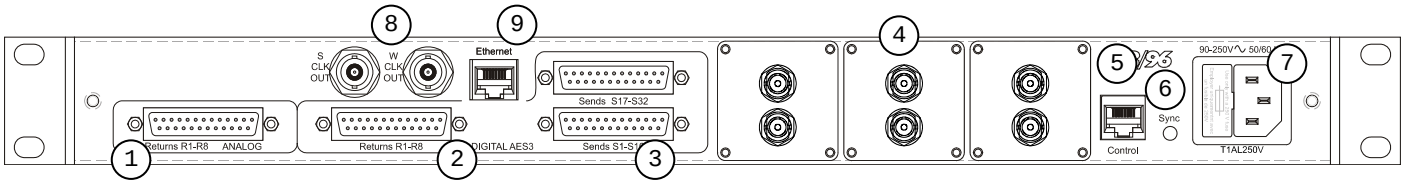
Getting Started

Setting up and using your Light Viper 4832 is a quick and simple process. Just follow these steps:

1. Place the VIS-4832 in a rack with your digital mic-pre's or other source. Place the VIM-1832 Mixer Box close to the mixer so that the send cables can reach the console's inputs. connect AC power.
2. Connect and run the Fiber between the two boxes, power up and check the Sync light on both units
3. Connect the inputs and returns to the stage box.
4. Connect the analog fan out or digital cables to the console or recording device.
5. If remote controlling Yamaha AD8HR or Aphex mic-pre's via a Yamaha console, at the console end connect the DGL-422 from the Yamaha 9 pin control connector to the VIM-1832 RJ45 "control" connector. At the stage end, connect the DGL-422 cable from the RJ45 "control" connector on the VIS-4832 to the 9 pin remote control connector on the AD8HR mic pre's.
6. Start mixing.

NOTE: the signal output of the VIS-4832 on the analog outputs is line level. When connecting this system into a console or other device, use line level inputs or engage input pads to achieve optimal signal-to-noise ratio.

The more advanced functions of the Light Viper VIS-4832 (control, clocks, etc.) are addressed later in this manual.



The Stage Box – VIS-4832

(1) Analog Returns (outputs) – The (8) returns are connected via a single DB25 connector. Returns are line level.

(2) Digital Returns (outputs) – The (8) digital returns are connected via a single DB25 connector. Returns are all AES digital.

(3) Sends (inputs) – The (32) AES digital inputs on the VIS-4832 are connected via (2) DB25 connectors, (16) channels per DB25 connector.

(4) Fiber Connections – The VIS-4832 has a primary fiber connector standard. The fiber connector marked “primary” needs to be connected to a VIM-1832 at all times as the VIM-1832 provides the system clock. There are also (2) additional (optional) fiber outputs from the VIS-4832 that would connect via fiber to VIM-1032 mixer boxes. Always be certain to use appropriate fiber and connectors. LightViper systems use multimode fiber. Single mode optics are available on a custom basis for situations where single mode fiber may already exist.

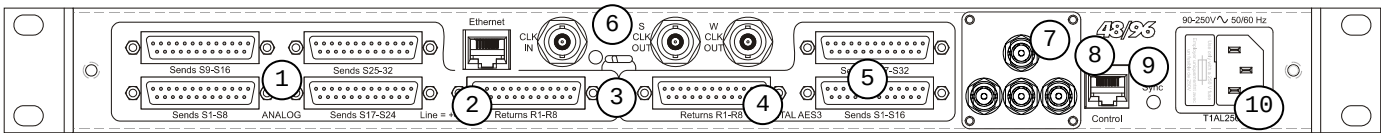
(5) Control Circuits Connector – This RJ45 connector provides (3) bi-directional CMOS or TTL data lines (up to 38.4KHz from Stage to FOH and 2MHz from FOH to stage) plus voltage and GND. This connector is used in conjunction with DGL-422 cables for transporting Yamaha control, or with MD3 units to transport RS-422, RS-232 or MIDI. THIS IS NOT AN ETHERNET CONNECTOR – CONNECTING AN ETHERNET DEVICE TO THIS CONNECTOR COULD DAMAGE THE DEVICE. The pin outs for this connector are detailed in the appendix. Most CMOS or TTL functions / equipment can be adapted to make use of this connector.

(6) Sync LED – This LED indicates the status of the fiber-optic link between the stagebox (VIS-4832) and mixer box (VIM-1832). It has three states; SOLID RED indicates there is no sync present; ALTERNATING RED & GREEN indicates the unit is searching for sync; SOLID GREEN indicates sync is present (optical link) and OFF indicates no power.

(7) Power Connector / Fuse – The AC power connection to the VIS-4832 is made via a supplied IEC power cord. The internal power supply can accept 90-260V at either 50 or 60 Hz> The power fuse is a 5x20mm, 1A Slo-Blo. Only replace the fuse with an exact match. If after replacement the fuse blows again, contact Fiberplex for service.

(8) Word Clock / Super Clock output

(9) Optional (ETH-1832) Ethernet connector



The Mixer Box – VIM-1832

(1) Analog Sends (outputs) - Exiting the Mixer Box, the sends from the Stage Box are grouped in 4 groups of 8. Each group is accessed via DB-25 to XLR "fan out" cables. DB-25 TO 1/4" cables are also available for use with mixers that only allow line level connection through 1/4" jacks. Each send exits the Mixer Box at Line Level, maximizing headroom on the console.

(2) Analog Returns (inputs) - The analog returns to the Stage box are made via a single DB-25 to XLR "fan out" cable. The DB-25 connectors on both the Analog Sends and Returns utilize standard DA-88, TASCAM balanced pin-out configuration. Connector pin-outs are illustrated in the Appendix.

(3) Return Select Switch - The 8 return channels are switch-selectable as EITHER analog OR digital. This selection is made via the recessed switch in the center of the Mixer Box adjacent to the clock connections.

(4) Digital Returns (inputs) - The digital returns to the Stage box are made via a single DB-25 to XLRF cable. These inputs MUST be used in conjunction with the Clock I/O described below in either master or slave mode. The DB-25 connectors on both the Digital Sends and Returns utilize a standard AES3 balanced pin-out configuration. Cable and connector pin-outs are illustrated in the Appendix. NOTE: The Analog DA-88 cables are not pin compatible with the digital cables.

(5) Digital Sends (outputs) - The sends from the stage box are simultaneously available as AES3 digital signals. Connections are made via 2 DB-25 connectors, with 16 channels on each. Access to the digital signal allows for connection to digital recorders or consoles, bypassing their onboard converters and eliminating the need for outboard converters. For digital connection straight into a Yamaha PM5D, DM2000, DM1000 or M7CL, the optional VCB-DDMY and VCB-DDMYIO cables connect directly to the Yamaha MY16AE cards. Cables are available to connect to Pro Tools, or other devices.

(6) Clock I/O - By itself, the entire Light Viper system is internally frequency coherent. The VIM-1832 Mixer Box contains the clock master for the system, and the Stage Box and any other send units that are connected via the optical splits all sync to the clock provided by the master. The LightViper 1832 system runs natively at 24 bit/ 96k, but can also run at 24 bit / 48k with a 48k clock input to the "clock in" connector on the VIM-1832.

The clock I/O is used when you need to synchronize with external equipment making the entire system frequency coherent. When using the digital returns the VIM MUST BE in either master or slave mode with the equipment providing the digital input.

The Clock input will accept either "Word Clock" (96 KHz / 48 kHz) or "Super Clock" (24.576 MHz / 12.288 MHz). Outputs are provided for both clock types.

The system can operate in Slave Mode —In this mode clock is supplied via the "clock in" connector overriding the internal clock. The "clock outputs" are pass-throughs for the clock connected to the input.

In Master Mode there is nothing connected to the input and external equipment is connected to the Clock Out, making the internal clock the master in the system.

The LED next to the Clock In connector has three states to indicate Status.

Off —No signal present on the Clock Input

Red —Signal is present on the Clock Input but it is neither a valid Word Clock nor Super Clock

Green —There is either a valid Word Clock or Super Clock signal on the Clock In

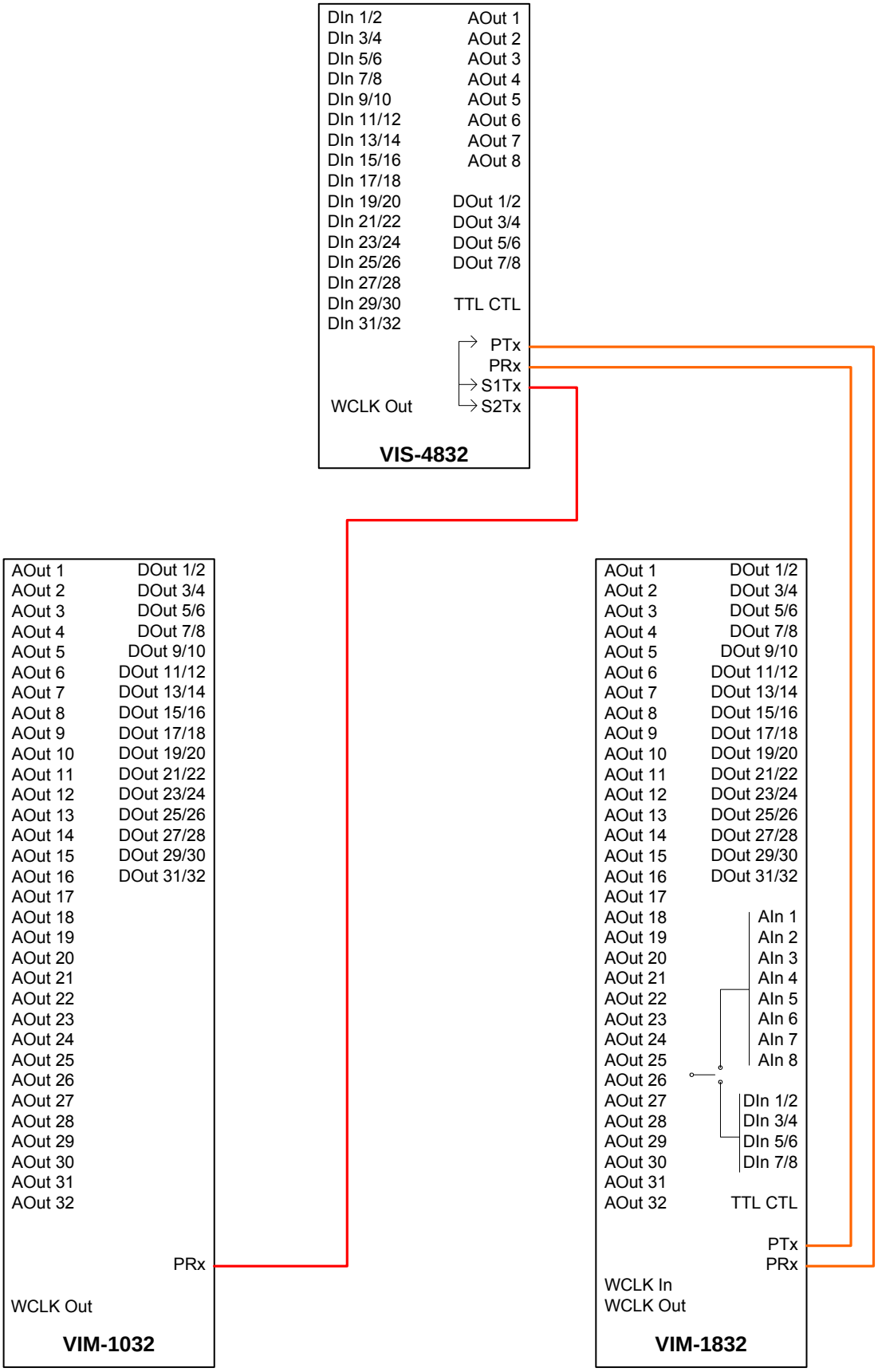
(7) Fiber Connector - The Mixer Box can be fit with ST connectors, a single tactical grade TAC-4 connector, or a Neutrik OpticalCon connector. In live production use, it is recommended to fit the VIM-1832 and VIM-1032 units with ST connectors, and utilize the VPL-11, 12 or 13 panels containing 1, 2, and 3, TAC-4 panel mount connectors respectively. These connectors have ST pigtails which connect with the mixer box ST connectors. Always be sure to use appropriate fiber and compatible connectors.

(8) Control Circuits Connector - This RJ-45 jack provides (3) bi-direction (mixer box to stage box) CMOS or TTL data lines (up to 38.4 KHz from Stage to FOH and 2MHz from FOH to Stage) plus voltage and GND. THIS IS NOT AN ETHERNET CONNECTOR – CONNECTING AN ETHERNET DEVICE TO THIS CONNECTOR COULD DAMAGE THE DEVICE. The Pin-Outs for this connector are detailed in the Appendix. Most CMOS or TTL functions/equipment can be adapted to make use of this connector.

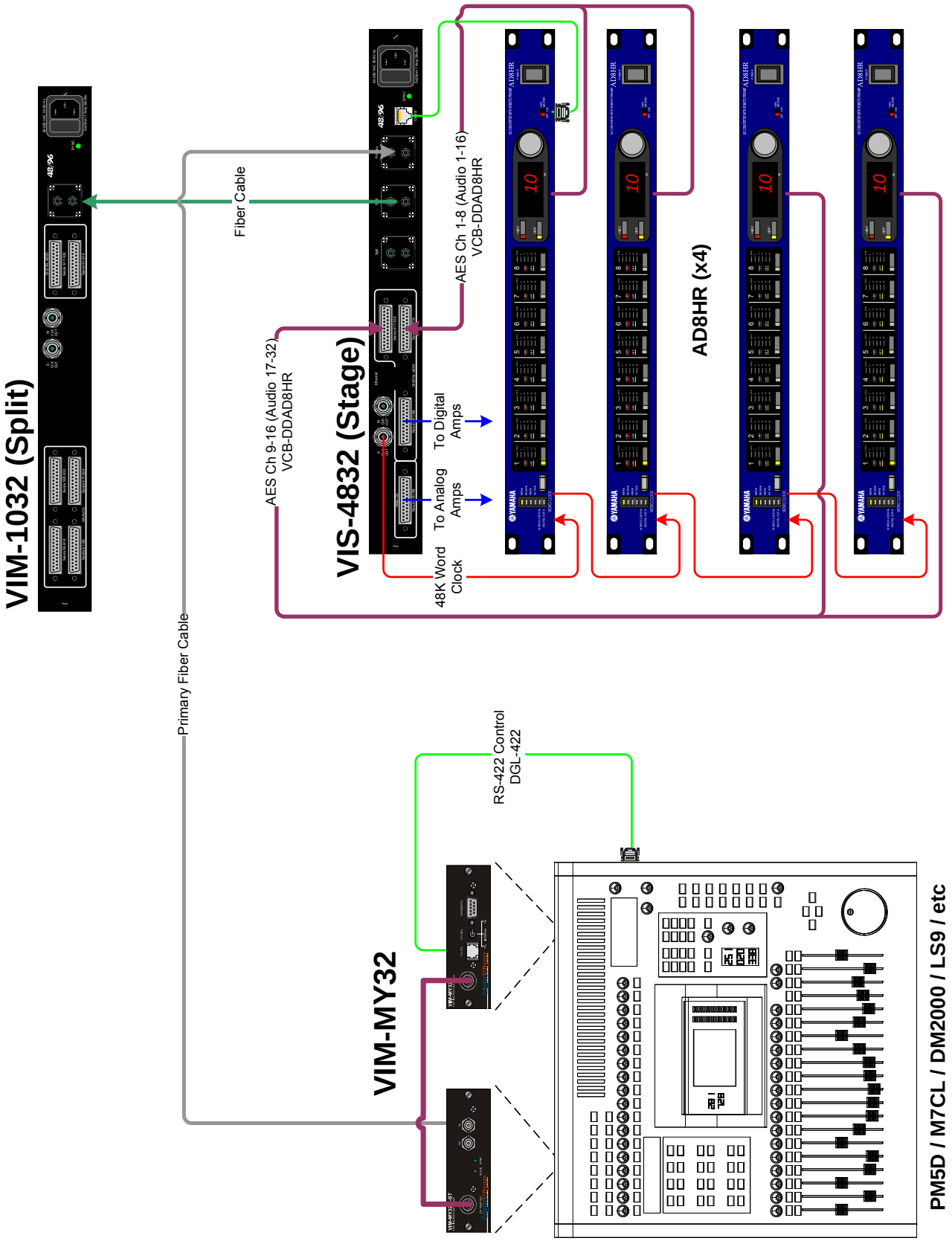
(9) Sync LED – This LED indicates the status of the fiber-optic link between the VIM-1808 and VIM-0808. It has three states; SOLID RED indicates there is no sync present; ALTERNATING RED & GREEN indicates the unit is searching for sync; SOLID GREEN indicates sync is present (optical link) and OFF indicates no power.

(10) Power Connector/Fuse - Power to the Mixer Box is provided with the supplied 3-Prong IEC Power Cord. The internal power supply can accept any voltage from 90-260 at either 50 or 60Hz. The power fuse is a 5x20mm, 1A Slo-Blo. Only replace the fuse with an exact match. If after replacement the fuse blows again, return the unit for service.

Functional Block Diagram with One Optical Split



Standard Yamaha Configuration



Fiber Options

Tactical grade military fiber - (TAC-4) is used for live production applications (P/N TFC-0000-04). Weighing 8.4 lbs.(12.6kg) for(300)feet, this cable contains (4) fibers and therefore it is capable of carrying the signals of (2) systems on a single cable. The TAC-4 connectors are hermaphroditic and can be connected to one another. Multimode fiber can transport signals up to 2km (1.25 miles).

TAC-4

Neutrik OpticalCon® Fiber – this fiber cable contains (2) fibers and is also a tactical grade fiber (P/N TFC-0000-02OC).

Neutrik OpticalCon Fiber Cable & Panel Mount Connector

PVC fiber – PVC duplex fiber contains (2) fibers. Plenum rated fiber is also available. The installer can terminate the fiber themselves, or Fiberplex can supply it pre-terminated. This fiber is also available with a strain relief and “pulling eye” which reduces on site labor.

Plenum Install Fiber

LightViper VIS-4832 Specification

- 32 x 8 digital input fiber optic transport
- Cable runs over 1.25 miles with no loss
- Rugged fiber cable smaller in diameter than standard mic cable
- 24 bit / 96kHz sampling (native), 24 bit / 48kHz (external)
- Heavy gauge steel construction
- Optional lossless 3 way split of all 32 channels on stage end
- Simultaneous analog / AES3 digital outputs on all 32 Channels
- Extended range and flexibility means limitless routing options

1. General Specifications

Total Harmonic Distortion	Less than 0.01%	1 KHz @ +4 dBu
Frequency Response	± 0.5 dB	20-20kHz @ +16 dBu
Dynamic Range	102 dB	
Crosstalk	5 dB above noise floor	
Sampling Rate	24 bit / 96kHz or 24 bit / 48 kHz	
Latency	20 μs one way, digital input to digital output	
Operating Temp	0 to +50°C ambient temperature.	
Sync LED	LED (green) indicates optical link OK, LED (red) indicates problem with optical link, LED (off) indicates no power.	
AC Power	Universal 90-250 VAC, 50/60 Hz, IEC connector with fuse (VIS-4832, VIM-1832 & VIM-1032)	
Max Current Rating	VIS-4832 / VIM-1832 / VIM-1032	0.473 mA @ 90V
On / Off Control Date +	RJ-45 connector for logic level control, CMOS or TTL at 2 MHz max per channel.	
Dimensions	VIM-4832 / VIM-1832 / VIM-1032	1 Rack Unit X 6.5" Deep
Weight	VIM-4832 / VIM-1832 / VIM-1032 300 ft Fiber Cable	6.5 lbs 6 lbs

*1-Hum & Noise are measured with an AES17 compliant filter at 20 kHz. Temperature condition @+10 - +25° C.

2.1 Input Characteristics

Connection	Gain Setting	Voltage Gain[*2]	Sensitivity[*3]	S/N ref +0dBu	Overload	Clipping	Input Impedance
Digital Sends 1-32[*4] (VIS-4832)	AES Digital						
Analog Returns 1-8 (VIS-4832)	n/a	0(0 dB)	1.65 mVrms	-83 dBu	+16 dBu	+19 dBu	2 KΩ
Digital Returns 1-8 (Mixer End)	AES3 Digital						

*1–Hum & Noise are measured with an AES17 compliant filter at 20 kHz. Temperature condition @+10 - +25° C. *2–0dBu is referenced to 0.775Vrms. *3–Sensitivity is the lowest level that will produce an output of +4dBu (1.23V).

2.2 Output Characteristics

Connection	Actual Source Impedance	For Use With Nominal	Output Level Nominal		Connector
Analog Returns 1-8 (Stage	150 Ω□	600 Ω Lines	+4 dBu (1.23	+19 dBu (7 V)	DB-25, 8 channels per connector
Digital Returns 1-8	AES Digital				DB-25, 8 channels per vonnector
Digital Sends 1-32 (Mixer	AES3 Digital				DB-25, 16 channels per connector

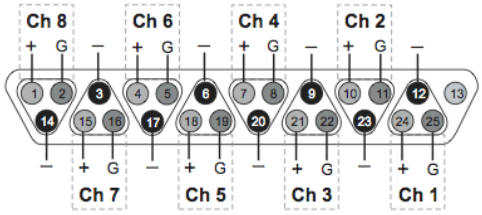
2.3 Optical Characteristics

Connector[*1]	Installation Tension	Operating Tension	Min Bend Radius	Crush Resistance	Weight
Fiber-Optic Cable[*2]	400 lbs	130 lbs	3.7"	228 lb/in^2	19 lbs / 1000'
Optical Fiber[*3]	Attenuation	Bandwidth	Numerical Aperture	System Optical Data Rate	System Operating Distance
	1 dB/Km @1300 nm	500 MHz/Km @ 1300	0.275	122 Mbs	2 Km (1.25 mi)

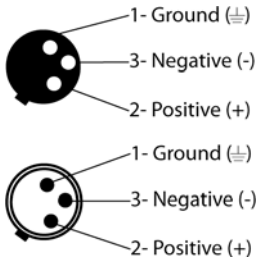
*1–TAC-4 4 channel SMPTE compliant, *2–Four Channel Tactical Break Out Cable, 0.30"(7.5mm) Outer Diameter, Kevlar™ Strength Member *3–Graded Index, Multimode, Dual Window (850/1300nm)

ANALOG – DB25 Cable Pin Outs

1.	Ch. 8 +	14.	Ch. 8 -
2.	Ch. 8 G	15.	Ch. 7 +
3.	Ch. 7 -	16.	Ch. 7 G
4.	Ch. 6 +	17.	Ch. 6 -
5.	Ch. 6 G	18.	Ch. 5 +
6.	Ch. 5 -	19.	Ch. 5 G
7.	Ch. 4 +	20.	Ch. 4 -
8.	Ch. 4 G	21.	Ch. 3 +
9.	Ch. 3 -	22.	Ch. 3 G
10.	Ch. 2 +	23.	Ch. 2 -
11.	Ch. 2 G	24.	Ch. 1 +
12.	Ch. 1 -	25.	Ch. 1 G
13.	Unused		

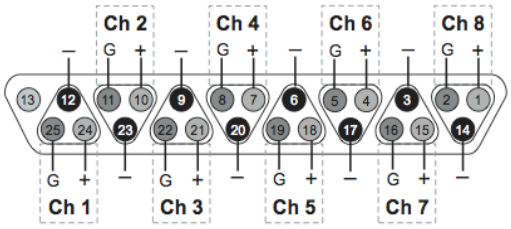


VCB-ADXM/VCB-ADXF Cable Pin Out



ANALOG Connector Pin Outs

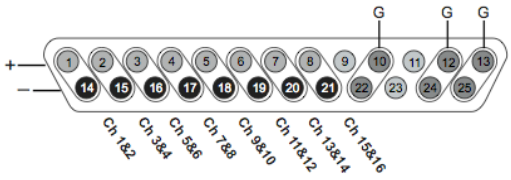
1.	Ch. 8 +	14.	Ch. 8 -
2.	Ch. 8 G	15.	Ch. 7 +
3.	Ch. 7 -	16.	Ch. 7 G
4.	Ch. 6 +	17.	Ch. 6 -
5.	Ch. 6 G	18.	Ch. 5 +
6.	Ch. 5 -	19.	Ch. 5 G
7.	Ch. 4 +	20.	Ch. 4 -
8.	Ch. 4 G	21.	Ch. 3 +
9.	Ch. 3 -	22.	Ch. 3 G
10.	Ch. 2 +	23.	Ch. 2 -
11.	Ch. 2 G	24.	Ch. 1 +
12.	Ch. 1 -	25.	Ch. 1 G
13.	Unused		



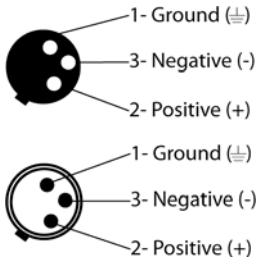
Analog Audio Connector Pin Out

Digital Connector Pin Outs

1.	Ch 1&2 +	14.	Ch 1&2 -
2.	Ch. 3&4 +	15.	Ch. 3&4 -
3.	Ch 5&6 +	16.	Ch. 5&6 -
4.	Ch. 7&8 +	17.	Ch. 7&8 -
5.	Ch. 9&10 +	18.	Ch. 9&10 -
6.	Ch. 11&12 +	19.	Ch. 11&12 -
7.	Ch. 13&14 +	20.	Ch. 13&14 -
8.	Ch 15 & 16 +	21.	Ch. 15&16 -
9.	Unused	22.	Gnd.
10.	Gnd.	23.	Unused
11.	Unused	24.	Gnd.
12.	Gnd.	25.	Gnd.
13.	Gnd.		

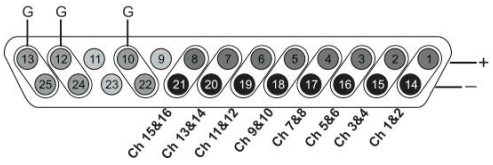


VCB-DDXM/VCB-DDXF Cable Pin Out



Digital Connector Pin Outs

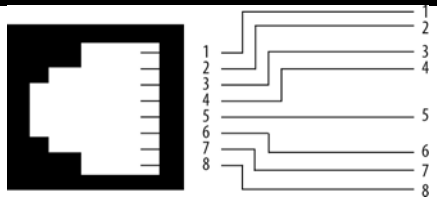
1.	Ch 1&2 +	14.	Ch 1&2 -
2.	Ch. 3&4 +	15.	Ch. 3&4 -
3.	Ch 5&6 +	16.	Ch. 5&6 -
4.	Ch. 7&8 +	17.	Ch. 7&8 -
5.	Ch. 9&10 +	18.	Ch. 9&10 -
6.	Ch. 11&12 +	19.	Ch. 11&12 -
7.	Ch. 13&14 +	20.	Ch. 13&14 -
8.	Ch 15 & 16 +	21.	Ch. 15&16 -
9.	Unused	22.	Gnd.
10.	Gnd.	23.	Unused
11.	Unused	24.	Gnd.
12.	Gnd.	25.	Gnd.
13.	Gnd.		



Digital Audio Connector Pin Out

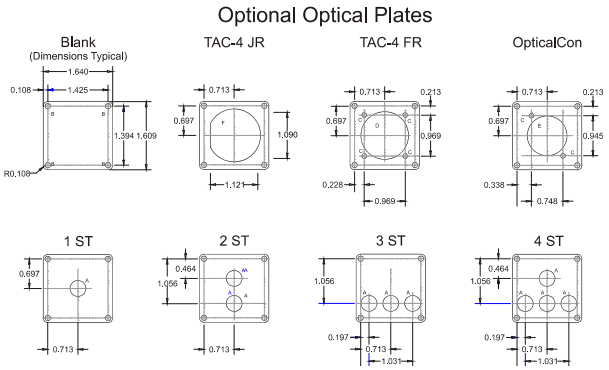
Control Circuits RJ-45 Pin Outs

1.	GND
2.	TX1
3.	TX2
4.	TX3
5.	RX1
6.	RX2
7.	RX3
8.	VCC +5VDC



Fiber Connection Plates

Each fiber connection on LightViper components can be configured with any of the plates in the diagram. The plates accommodate different fiber connector types either singly. Four different ST plates accommodate 1, 2, 3, or 4 ST connections. A blank plate should always be installed in an unused connection bay.

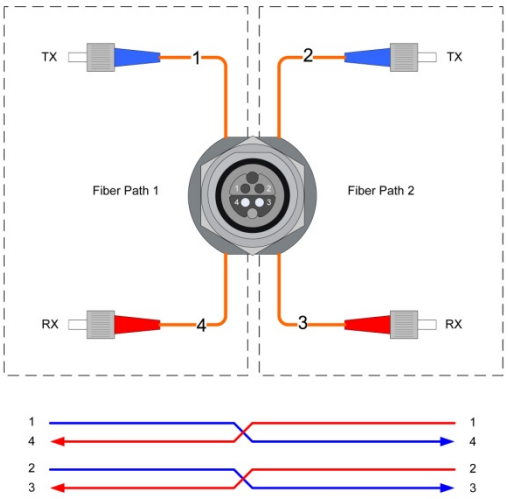


TAC-4 Installation Instructions

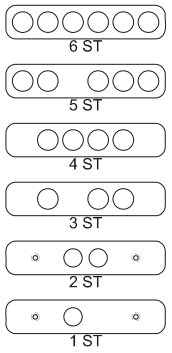
When using TAC-4 panel mount connectors:

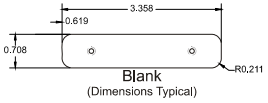
Due to the hermaphroditic nature of the TAC-4 connector, channels 1 & 4 and 2 & 3 are crossed by necessity. Therefore, pins 1 & 2 should always be connected to connectors marked TX and pins 3 & 4 should always be connected to pins marked RX. Pins 1 & 4 are always paired together and pins 2 & 3 will always be paired together.

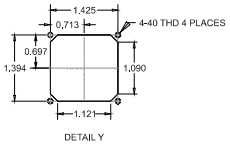
Important Note: A single TAC-4 connector and cable contains (4) fibers and can transport both pairs of fiber inputs/outputs of the EF-2 on a single connector / cable. If using Neutrik OpticalCon, two cables / connectors are required, one for each pair, as the OpticalCon cable and connectors contain (2) fibers. When using ST fiber connectors on the chassis of the EF-2, the ST connectors may be mounted on the rear of the unit, or alternatively on the front panel of the unit.

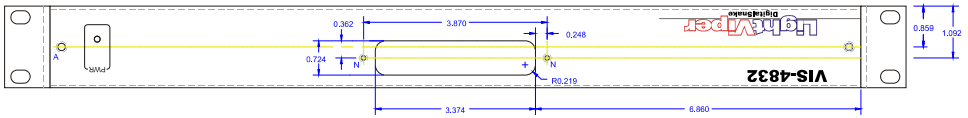


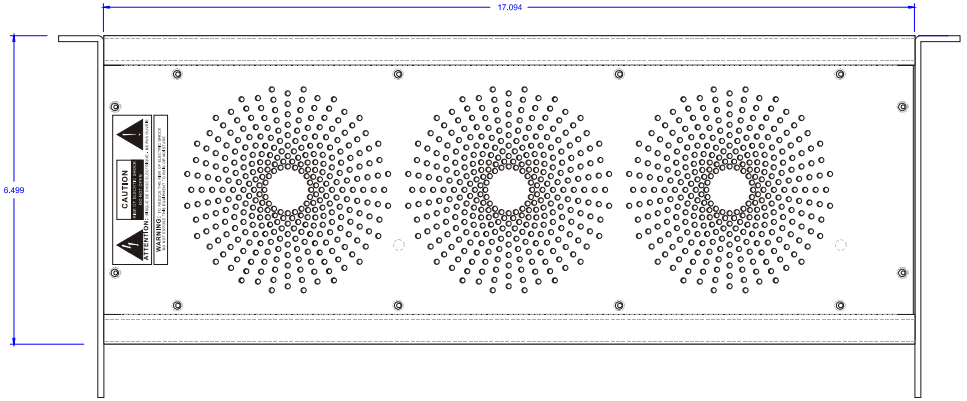
Alternate Optical Panels



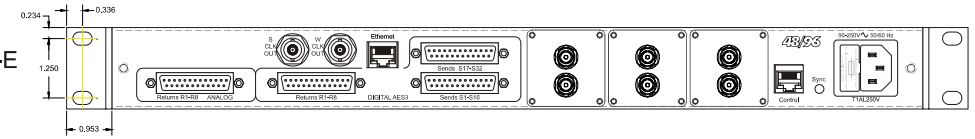


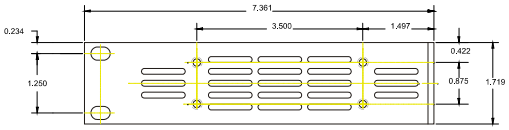




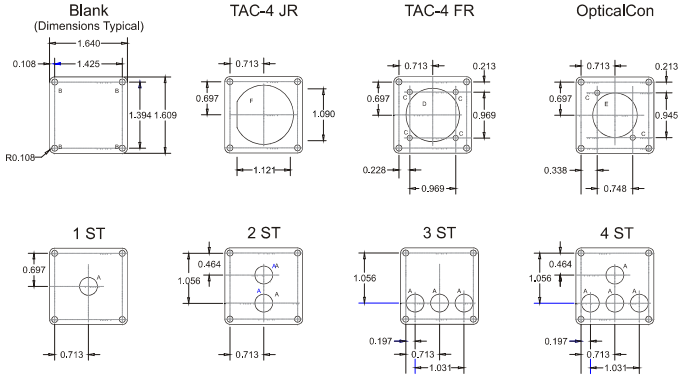


VIS-4832-ST-E



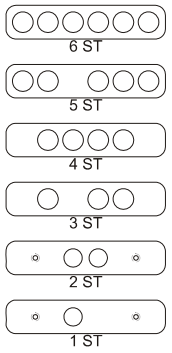


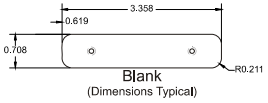
Optional Optical Plates

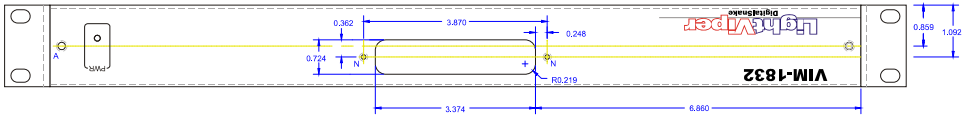


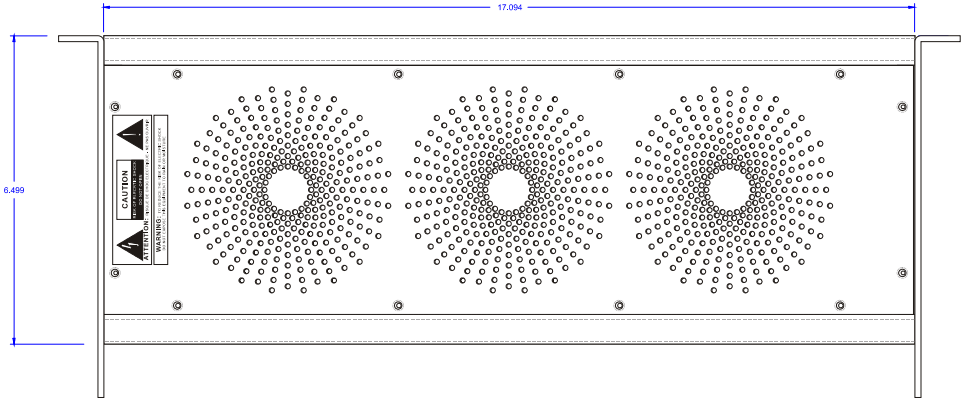
UNLESS OTHERWISE SPECIFIED	ENGR. HSO III	DATE: 4/1/2006	fiberplex LightViper
DIMENSIONS IN INCHES TOLERANCES: FRACTION +/- 1/64 X.XX +/- 0.10 X.XXX +/- 0.005 ANGLES	DRAWN HSO III	DATE: 4/1/2006	10840-412 Guilford Rd. Annapolis Junction, MD 20701 301-604-0100 fiberplex.com • lightviper.com
MATERIAL: #16 (0.059) CRS FINISH:	REVIEW	DATE:	VIS-4832 Final
	CHECKED	DATE:	FSCM: E 117127 REV: -
			SCALE: 1:1 SHEET 1 OF 1

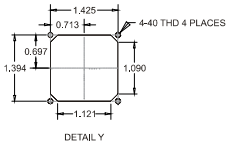
Alternate Optical Panels



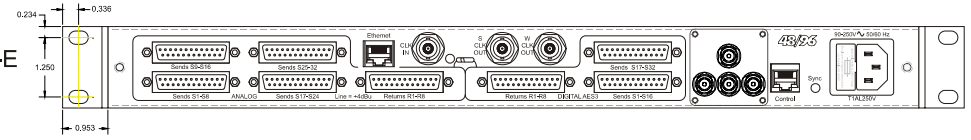


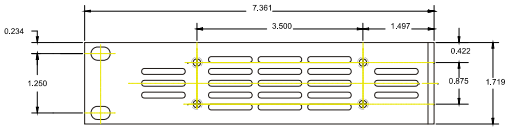




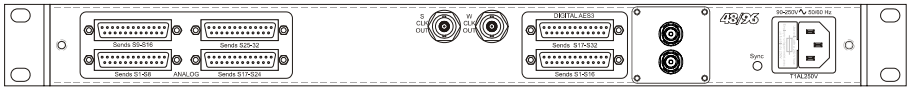


VIM-1832-ST-E

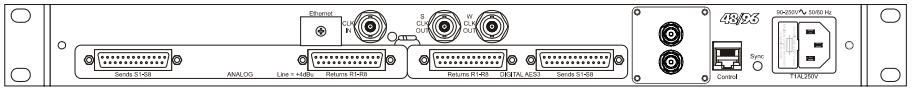




VIM-1032-ST



VIM-1808-ST



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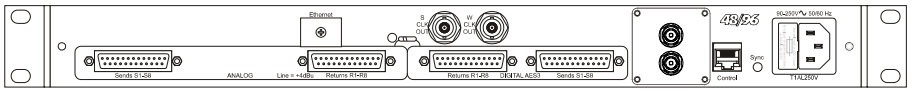
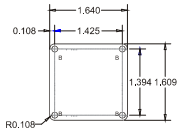
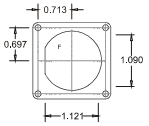


Optional Optical Plates

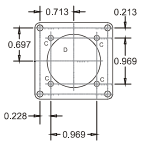
Blank
(Dimensions Typical)



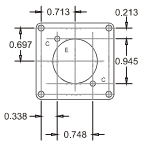
TAC-4 JR



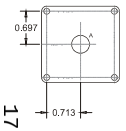
TAC-4 FR



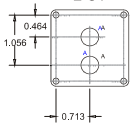
OpticalCon



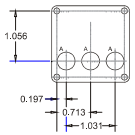
1 ST



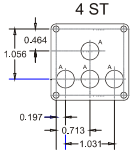
2 ST



3 ST



4 ST



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UNLESS OTHERWISE SPECIFIED	ENGR. HSO III	DATE: 4/1/2006	fiberplex LightViper
DIMENSIONS IN INCHES	DRAWN HSO III	DATE: 4/1/2006	10840-412 Guilford Rd. Annapolis Junction, MD 20701 301-604-0100 fiberplex.com • lightviper.com
TOLERANCES: FRACTION +/- 1/64 .XX +/- 0.10 .XXX +/- 0.005 ANGLES	REVIEW	DATE:	VIM-1832/1032/1808/0808 Final
MATERIAL: #16 (0.050) CRS	CHECKED	DATE:	FSCM: E 117126 REV: -
FINISH:			SCALE: 1:1 SHEET 1 OF 1

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fiberplex TECHNOLOGIES, LLC
18040-412 Guilford Rd. • Annapolis Junction, MD 20701
fiberplex.com • sales@fiberplex.com • 301.604.0100

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